



Department of Energy

Washington, DC 20585

January 15, 2004

The Honorable Edward J. Markey
U.S. House of Representatives
Washington, D.C. 20515

Dear Congressman Markey:

Thank you for your letter of November 7, 2003, to Secretary Abraham regarding press reports concerning a Department of Energy funded study of Liquefied Natural Gas (LNG) accidents. As you noted, the work was done in the wake of the tragic events of September 11, 2001, and performed by Quest Consultants, Inc. (Quest), a contractor to the Department of Transportation.

Your letter focuses on several press reports dealing with Quest analysis. You have asked a series of questions relating to those press reports and the work performed by Quest for our Department. I have enclosed the responses to each of those questions.

Should you require additional information, please contact me or Mr. Rick A. Dearborn, Assistant Secretary for Congressional and Intergovernmental Affairs, at (202) 586-5450.

Sincerely,

A handwritten signature in black ink, appearing to read "Carl Michael Smith", is written over a horizontal line.

Carl Michael Smith
Assistant Secretary
Office of Fossil Energy

Enclosures

cc: The Honorable Norman Y. Mineta
Secretary of Transportation



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Responses to November 7, 2003, Questions from Congressman Edward J. Markey

Question 1: Is it the Department's understanding that the Quest Study was performed for the Department of Energy?

Answer: Yes. The Commonwealth of Massachusetts requested assistance from a number of Federal agencies in assessing the safety of scheduled deliveries of liquefied natural gas (LNG) to the Everett Massachusetts LNG terminal. In response, an interagency working group was formed and began working on the request for assistance.

DOE sought the guidance of the Department of Transportation's (DOT) LNG experts as to possible sources of information on LNG tankers. Quest Consultants, Inc. (Quest) was recommended as having a working model that could assess LNG transportation issues and as having done work for DOT. DOE contacted Quest and asked it to perform a "quick analysis" of the possible results of an attack on an LNG tanker in Boston Harbor.

Quest provided the results of its calculations to DOE in a letter to Dr. Donald Juckett, dated October 2, 2001. Quest provided further clarification of the information in a letter to Dr. Juckett dated October 3, 2001. We understand these letters previously have been provided to you.

Question 2: Was DOE press officer Drew Malcomb inaccurate or misleading when he stated to a reporter that DOE "did not commission or release the [Quest] study," was "not involved" in the study in any way, and that "The DOE member who told you [the reporter] that DOE was involved was misinformed. We were not involved."?

Answer: The reporter, Ben Raines of the Mobile Register, asked Mr. Malcomb about a "study" done for DOE by Quest and was told that DOE did not commission or release a "study." Mr. Holcomb was not aware of the "quick analysis" that Quest performed and that is set forth in Quests' October 2 and 3, 2001, letters.

Mr. Raines had additional conversations with other DOE staff members who reiterated that a "study" did not exist but were candid about the "quick analysis" contained in the letters of October 2 and 3.

Mr. Raines asked several times about a "study" and was told that the only work done for DOE by Quest was the information delivered in the two letters.

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Question 4: How has the Department made use of the Quest Study in connection with its responsibilities regarding the siting and safety of LNG facilities and the transportation of LNG to such facilities? If so, please explain exactly how the Quest study has been used.

Answer: The information provided by Quest was delivered as a part of the response to the request for assistance by the Commonwealth of Massachusetts in September 2001. Dr. Juckett traveled to Boston on October 5, 2001, to tour the Distrigas facility as a part of the interagency working group formed to assist Massachusetts. Information from the Quest documents were delivered at that time as a part of Dr. Juckett's presentation. Copies of the letters were given to representatives of the Federal Energy Regulatory Commission and the U.S. Coast Guard.

Dr. Juckett participated in a Coast Guard sponsored LNG workshop on February 12, 2002, in Solomon, Maryland. In his presentation at the workshop, Dr. Juckett made reference to some of the material received from Quest. Dr. Juckett used basically the same presentation for both events. (A copy of Dr. Juckett's presentation is enclosed.)

Those two presentations were the only use of the Quest material by DOE.

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Question 6: Did the Department base any regulatory, oversight, or enforcement actions or decisions on the accident scenarios or accident consequences set forth in the Quest report or in the Lloyd's Report?

Answer: DOE has not based any regulatory, oversight, or enforcement actions on the Quest analysis or Lloyd's report. While DOE has a policy role in energy supplies, it does not have regulatory responsibility over LNG facilities or LNG tankers. As discussed in the response to question #4 above, the sole use of the Quest material was in presentations by Dr. Juckett.

Question 7: The aforementioned press accounts raise serious question about the adequacy of the Quest study, indicating that it has not been peer reviewed and is contradicted by other scientific studies of LNG fires and explosions. Are you familiar with these concerns that have been raised about this non-peer reviewed study, and if so, do you believe that it should not be used as a basis for policy decisions with respect to LNG safety?

Answer: The Quest analysis relates, as do the vast amount of analyses on potential LNG accidents, to "model runs" done to predict consequences after a number of assumptions have been programmed into the model. The output of these analyses depends greatly on the assumptions established for the study. Various press accounts identify a number of studies that used different assumptions and contained varying levels of detail.

DOE takes into account many relevant information sources, as appropriate when formulating policy positions. Because the Quest model is an established model, it would not be subject to peer review.

The CANARY by Quest software employs the SLAB model for evaluating the dispersion of heavier-than-air gas clouds evolving from liquid pools. CANARY by Quest contains a set of complex models that calculate release conditions, initial dilution of the vapor (dependent upon the release characteristics), and the subsequent dispersion of the vapor introduced into the atmosphere. The release and dispersion models contained in the QuestFOCUS package (the predecessor to CANARY by Quest) were reviewed in a United States Environmental Protection Agency sponsored study (TRC, 1991) and an American Petroleum Institute study (Hanna, Strimaitis and Chang, 1991). In both studies the QuestFOCUS software was evaluated on technical merit (appropriateness of models for specific applications) and on model predictions for specific releases.

A study prepared for the Department of the Interior's Minerals Management Service (Chang, et al, 1998) reviewed models for use in evaluation of routine and accidental releases of flammable and toxic gases. CANARY by Quest received the highest possible ranking in the science and credibility areas. In addition, the report recommends

CANARY by Quest for use when evaluating toxic and flammable gas releases. The specific models (e.g., SLAB) contained in the CANARY by Quest software package have also been extensively reviewed in the published literature.

Question 8: The aforementioned press reports also indicate that a draft NOAA study projects hypothetical LNG fires that are much larger than those projected in either the Quest or Lloyd's reports. According to the Herald "NOAA's study...generally sides with a more devastating scenario long portrayed by Massachusetts Institute of Technology emeritus James Fay, said Bill Lehr, a researcher on the NOAA study." The Register article further suggests that the NOAA study may be more in line with other scientific studies done on this subject. Are you familiar with the NOAA study? Do you agree or disagree with its conclusions? Do you agree or disagree that the NOAA study, and the Fay studies, appear to be more in line with scientific and technical literature on this subject. If you agree, please indicate whether you intend to make any changes in the Department's oversight or regulatory policies or actions based on this new study. If you disagree, please explain the basis for your disagreement?

Answer: DOE recently received a copy of the draft paper "Comparison of Hypothetical LNG and Fuel Oil Fires on Water" and has taken it under scientific review.